

101.117-12/03 – including *Taq* pol., IFU-01
101.117-12u/03u – without *Taq* pol., IFU-02

Visit www.olerup.com for
“Instructions for Use” (IFU)

Lot No.: **1D9**

Lot-specific information

www.olerup-ssp.com

Olerup SSP® DRB1*14

Product number:	101.117-12/03 – including <i>Taq</i> pol. 101.117-12u/03u – without <i>Taq</i> pol.
Lot number:	1D9
Expiry date:	2018-June-01
Number of tests:	12 tests – Product No. 101.117-12/12u 3 tests – Product No. 101.117-03/03u
Number of wells per test:	47+1
Storage - pre-aliquoted primers:	dark at -20°C
- PCR Master Mix:	-20°C
- Adhesive PCR seals	RT
- Product Insert	RT

This Product Description is only valid for Lot No. 1D9.

Complete product documentation consists of generic Instructions for Use (IFU), lot specific Product Insert, Worksheet and Certificate.

CHANGES COMPARED TO THE PREVIOUS OLERUP SSP® DRB1*14 LOT (06X)

The DRB1*14 kit is updated for new alleles to enable separation of:

- Confirmed¹ alleles as listed in the IMGT/HLA database.
- Polymorphisms in exons outside of the region encoding the peptide binding domain.
- Null and Alternatively expressed alleles.

A well containing Negative Control primer pairs has been added.

The format of the Product Insert and Worksheet have been changed.

¹As described in section Uniquely Identified Alleles.

The DRB1*14 primer set, specificity and interpretation tables have been updated for the DRB1 alleles reported since the previous *Olerup SSP®* DRB1*14 lot (**Lot No. 06X**) was made. The kit design is based on IMGT/HLA database 3.21.1.

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As of lot series V, the Specificity Table is included in the lot-specific Product Insert, and the Interpretation Table is included in the Worksheet.

The primers of the wells detailed below have been exchanged, added or modified compared to the previous lot.

Well	5'-primer	3'-primer	rationale
5	-	-	Exchanged positive control primer pairs for improved HLA-specific amplification.
10	Added	-	5'-primer added for the DRB1*14:157 allele.
17	-	Added	3'-primer added for the DRB1*14:163 allele.
18	-	Added	3'-primer added for the DRB1*14:54:03 allele.
28	-	Added	3'-primer added for the DRB1*14:152N allele.
29	-	Added	3'-primer added for the DRB1*14:158 allele.
40	-	Added	3'-primer added for the DRB1*14:152N allele.
41	-	Added	3'-primer added for the DRB1*14:163 allele.
46	-	Added	3'-primer added for the DRB1*14:158 allele.
48	-	-	Updated negative control.

Change in revision R01 compared to R00:

1. In primer mix 20, the DRB1*08:14 allele is not amplified by the 215 base pair PCR product. This has been corrected in the Specificity Table and in the footnotes to the Interpretation Table.

Change in revision R02 compared to R01:

1. Primer mix 29 does not amplify the DRB1*14:137N allele, and primer mixes 28 and 40 do not amplify the DRB1*14:152N allele. This has been corrected in the Specificity and Interpretation Tables.

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Well **48** contains Negative Control primer pairs, that will amplify more than 95% of the *Olerup* SSP® HLA Class I, DRB, DQB1, DPB1 and DQA1 amplicons as well as all the amplicons generated by the control primer pairs matching the human growth hormone gene.

HLA-specific PCR product sizes range from 75 to 200 base pairs.

The PCR product generated by the positive control primer pair is 430 base pairs.

Length of PCR product	105	200	105	80	75	80	85
5'-primer¹	164	340	440	45	45	43	36
	5'-CAC ^{3'}	5'-Agg ^{3'}	5'-TTA ^{3'}	5'-Tgg ^{3'}	5'-Tgg ^{3'}	5'-Tgg ^{3'}	5'-TAC ^{3'}
							36
							5'-TAT ^{3'}
3'-primer²	231	2nd I	507	59	58	57	47
	5'-TgC ^{3'}	5'-AAA ^{3'}	5'-TTg ^{3'}	5'-CTC ^{3'}	5'-ggC ^{3'}	5'-CTC ^{3'}	5'-ACA ^{3'}
							48
							5'-gCA ^{3'}
							48
							5'-gCC ^{3'}
							52
							5'-TgT ^{3'}
A*	+	+	+				
B*	+	+	+				
C*	+	+	+				
DRB1				+	+		
DRB3				+	+		
DRB5				+			
DQB1					+		
DPB1						+	
DQA1							+

¹The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2nd or 3rd exon, matching the specificity-determining 3'-end of the primer is given. Nucleotide and codon numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

²The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2nd or 3rd exon or the 2nd intron, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Nucleotide and codon numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

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PRODUCT DESCRIPTION

DRB1*14 SSP subtyping

CONTENT

The primer set contains 5'- and 3'-primers for identifying the DRB1*14:01 to DRB1*14:163 alleles.

PLATE LAYOUT

Each test consists of 48 PCR reactions in a 48 well cut PCR plate.

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	NC

The 48 well cut PCR plate is marked with 'DRB1*14' in silver/gray ink.

Well No. 1 is marked with the Lot No. '1D9'.

Wells 1 to 47 – DRB1*14 high resolution primers.

Well 48 – Negative Control (NC).

A faint row of numbers is seen between wells 1 and 2 or wells 7 and 8 of the PCR trays. These stem from the manufacture of the trays, and should be disregarded.

The PCR plates are covered with a PCR-compatible foil.

Please note: When removing each 48 well PCR plate, make sure that the remaining plates stay covered. Use a scalpel or a similar instrument to carefully cut the foil between the plates.

INTERPRETATION

Due to the sharing of sequence motifs within the DR52 group of DRB1 alleles, non-DRB1*14 alleles will be amplified by primer mixes 1 to 26, 28 to 33 and 35 to 47. In addition, DRB3 alleles will be amplified by primer mixes 5, 18, 22, 24, 25, 27, 29 and 36.

For further details see Specificity Table.

UNIQUELY IDENTIFIED ALLELES

All the DRB1*14 alleles, i.e. **DRB1*14:01 to DRB1*14:163**, recognized by the HLA Nomenclature Committee in August 2015^{1,2} will be amplified by the primers in the DRB1*14 subtyping kit³.

The DRB1*14 kit enables separation of the confirmed DRB1*14 alleles as listed in the IMGT/HLA database. An HLA allele is listed as confirmed by IMGT/HLA if it has been sequenced by more than a single laboratory or from multiple sources. Current allele confirmation status for DRB1*14 alleles is listed below.

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The DRB1*14 kit also enables identification of polymorphisms in exons outside of the region encoding the peptide binding domain and of null and alternatively expressed alleles.

The following DRB1*14 alleles can be distinguished by the different sizes of the HLA-specific PCR product:

Alleles	Primer mix
DRB1*14:01:02-14:01:04, 14:86, 14:153	26
DRB1*14:26, 14:110	24
DRB1*14:75, 14:162	41

The DRB1*14 subtyping kit cannot distinguish the silent mutations in the DRB1*14:01:01-14:01:04 alleles, the DRB1*14:03:01-14:03:02 alleles, the DRB1*14:06:02-14:06:03 alleles, the DRB1*14:12:01-14:12:02 alleles, the DRB1*14:23:01-14:23:04 alleles, the DRB1*14:32:01-14:32:02 alleles, the DRB1*14:38:01-14:38:02 alleles, the DRB1*14:44:01 and 14:44:03 alleles, the DRB1*14:54:01-14:54:03 and 14:54:05 alleles, the DRB1*14:68:01-14:68:02 or the DRB1*14:126:01-14:126:02 alleles.

¹DRB1 alleles listed on the IMGT/HLA web page 2015-August-11, release 3.21.1, www.ebi.ac.uk/imgt/hla.

²Alleles that have been deleted from or renamed in the official WHO HLA Nomenclature up to and including the last IMGT/HLA database release can be retrieved from web page <http://hla.alleles.org/alleles/deleted.html>.

³The DRB1*14 primer set cannot separate the DRB1*14:21 and the DRB1*03:76 and DRB1*13:178 alleles. These alleles can be distinguished by the DR low resolution and/or DRB1*03 and DRB1*13 kits.

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ALLELE CONFIRMATION STATUS

Allele	Status ¹	Allele	Status ¹	Allele	Status ¹	Allele	Status ¹
DRB1*14:01:01	Confirmed	DRB1*14:33	Confirmed	DRB1*14:76	Confirmed	DRB1*14:126:01	Unconfirmed
DRB1*14:01:02	Confirmed	DRB1*14:34	Unconfirmed	DRB1*14:77	Unconfirmed	DRB1*14:126:02	Unconfirmed
DRB1*14:01:03	Unconfirmed	DRB1*14:35	Confirmed	DRB1*14:78	Unconfirmed	DRB1*14:127:01	Unconfirmed
DRB1*14:01:04	Unconfirmed	DRB1*14:36	Unconfirmed	DRB1*14:79	Unconfirmed	DRB1*14:127:02	Unconfirmed
DRB1*14:02:01	Confirmed	DRB1*14:37	Unconfirmed	DRB1*14:80	Unconfirmed	DRB1*14:128	Unconfirmed
DRB1*14:02:02	Unconfirmed	DRB1*14:38:01	Unconfirmed	DRB1*14:81	Unconfirmed	DRB1*14:129	Confirmed
DRB1*14:03:01	Confirmed	DRB1*14:38:02	Unconfirmed	DRB1*14:82	Confirmed	DRB1*14:130	Unconfirmed
DRB1*14:03:02	Unconfirmed	DRB1*14:39	Unconfirmed	DRB1*14:83	Unconfirmed	DRB1*14:131	Unconfirmed
DRB1*14:04:01	Confirmed	DRB1*14:40	Unconfirmed	DRB1*14:84	Confirmed	DRB1*14:132	Unconfirmed
DRB1*14:04:02	Unconfirmed	DRB1*14:41	Confirmed	DRB1*14:85	Unconfirmed	DRB1*14:133	Unconfirmed
DRB1*14:05:01	Confirmed	DRB1*14:42	Unconfirmed	DRB1*14:86	Unconfirmed	DRB1*14:134	Unconfirmed
DRB1*14:05:02	Unconfirmed	DRB1*14:43	Unconfirmed	DRB1*14:87	Confirmed	DRB1*14:135	Unconfirmed
DRB1*14:05:03	Unconfirmed	DRB1*14:44:01	Unconfirmed	DRB1*14:88	Unconfirmed	DRB1*14:136	Confirmed
DRB1*14:05:04	Unconfirmed	DRB1*14:44:02	Unconfirmed	DRB1*14:89	Confirmed	DRB1*14:137N	Unconfirmed
DRB1*14:06:01	Confirmed	DRB1*14:44:03	Unconfirmed	DRB1*14:90	Confirmed	DRB1*14:138	Confirmed
DRB1*14:06:02	Confirmed	DRB1*14:45	Unconfirmed	DRB1*14:91	Unconfirmed	DRB1*14:139	Unconfirmed
DRB1*14:06:03	Unconfirmed	DRB1*14:46	Confirmed	DRB1*14:92N	Unconfirmed	DRB1*14:140	Unconfirmed
DRB1*14:07:01	Confirmed	DRB1*14:47	Unconfirmed	DRB1*14:93	Unconfirmed	DRB1*14:141	Confirmed
DRB1*14:07:02	Unconfirmed	DRB1*14:48	Confirmed	DRB1*14:94	Confirmed	DRB1*14:142	Unconfirmed
DRB1*14:08	Confirmed	DRB1*14:49	Confirmed	DRB1*14:95	Confirmed	DRB1*14:143	Confirmed
DRB1*14:09	Confirmed	DRB1*14:50	Unconfirmed	DRB1*14:96	Unconfirmed	DRB1*14:144	Unconfirmed
DRB1*14:10	Confirmed	DRB1*14:51	Unconfirmed	DRB1*14:97	Confirmed	DRB1*14:145	Confirmed
DRB1*14:11	Confirmed	DRB1*14:52	Confirmed	DRB1*14:98	Unconfirmed	DRB1*14:146	Unconfirmed
DRB1*14:12:01	Confirmed	DRB1*14:53	Unconfirmed	DRB1*14:99	Confirmed	DRB1*14:147	Unconfirmed
DRB1*14:12:02	Unconfirmed	DRB1*14:54:01	Confirmed	DRB1*14:100	Unconfirmed	DRB1*14:148	Unconfirmed
DRB1*14:13	Confirmed	DRB1*14:54:02	Unconfirmed	DRB1*14:101	Confirmed	DRB1*14:149	Unconfirmed
DRB1*14:14	Confirmed	DRB1*14:54:03	Unconfirmed	DRB1*14:102	Unconfirmed	DRB1*14:150	Unconfirmed
DRB1*14:15	Confirmed	DRB1*14:54:04	Unconfirmed	DRB1*14:103	Confirmed	DRB1*14:151	Unconfirmed
DRB1*14:16	Confirmed	DRB1*14:54:05	Unconfirmed	DRB1*14:104	Unconfirmed	DRB1*14:152N	Unconfirmed
DRB1*14:17	Confirmed	DRB1*14:55	Unconfirmed	DRB1*14:105	Unconfirmed	DRB1*14:153	Unconfirmed
DRB1*14:18	Confirmed	DRB1*14:56	Unconfirmed	DRB1*14:106	Confirmed	DRB1*14:154	Unconfirmed
DRB1*14:19	Confirmed	DRB1*14:57	Unconfirmed	DRB1*14:107	Unconfirmed	DRB1*14:155	Unconfirmed
DRB1*14:20	Confirmed	DRB1*14:58	Unconfirmed	DRB1*14:108	Unconfirmed	DRB1*14:156	Unconfirmed
DRB1*14:21	Confirmed	DRB1*14:59	Unconfirmed	DRB1*14:109	Confirmed	DRB1*14:157	Confirmed
DRB1*14:22	Confirmed	DRB1*14:60	Unconfirmed	DRB1*14:110	Unconfirmed	DRB1*14:158	Confirmed
DRB1*14:23:01	Confirmed	DRB1*14:61	Confirmed	DRB1*14:111	Unconfirmed	DRB1*14:159	Unconfirmed
DRB1*14:23:02	Unconfirmed	DRB1*14:62	Unconfirmed	DRB1*14:112	Unconfirmed	DRB1*14:160	Unconfirmed
DRB1*14:23:03	Unconfirmed	DRB1*14:63	Unconfirmed	DRB1*14:113	Confirmed	DRB1*14:162	Unconfirmed
DRB1*14:23:04	Confirmed	DRB1*14:64	Unconfirmed	DRB1*14:114	Unconfirmed	DRB1*14:163	Confirmed
DRB1*14:24	Confirmed	DRB1*14:65	Unconfirmed	DRB1*14:115	Unconfirmed		
DRB1*14:25	Confirmed	DRB1*14:67	Unconfirmed	DRB1*14:116	Unconfirmed		
DRB1*14:26	Unconfirmed	DRB1*14:68:01	Confirmed	DRB1*14:117	Unconfirmed		
DRB1*14:27	Unconfirmed	DRB1*14:68:02	Unconfirmed	DRB1*14:118	Unconfirmed		
DRB1*14:28	Unconfirmed	DRB1*14:69	Unconfirmed	DRB1*14:119	Confirmed		
DRB1*14:29	Confirmed	DRB1*14:70	Confirmed	DRB1*14:120	Unconfirmed		
DRB1*14:30	Confirmed	DRB1*14:71	Confirmed	DRB1*14:121	Unconfirmed		
DRB1*14:31	Unconfirmed	DRB1*14:72	Confirmed	DRB1*14:122	Confirmed		
DRB1*14:32:01	Unconfirmed	DRB1*14:73	Unconfirmed	DRB1*14:123	Confirmed		
DRB1*14:32:02	Unconfirmed	DRB1*14:74	Confirmed	DRB1*14:124	Unconfirmed		
DRB1*14:32:03	Unconfirmed	DRB1*14:75	Unconfirmed	DRB1*14:125	Unconfirmed		

¹Allele status “confirmed” or “unconfirmed” as listed on the IMGT/HLA web page 2015-August-11, release 3.21.1, www.ebi.ac.uk/imgt/hla.

RESOLUTION IN HOMO- AND HETEROZYGOTES

Results file with resolution in DRB1*14 homo- and heterozygotes is available upon request.

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SPECIFICITY TABLE

DRB1*14 SSP subtyping

Specificities and sizes of the PCR products of the 47+1 primer mixes used for DRB1*14 SSP subtyping

Primer Mix	Size of spec. PCR product ¹	Size of contr. band ²	Amplified DRB1*14 alleles ³	Other amplified DRB alleles ⁴
1	215 bp	515 bp	*14:01:01-14:01:04, 14:05:01-14:05:04, 14:07:01-14:08, 14:14, 14:18, 14:23:01-14:23:04, 14:26, 14:32:01-14:32:03, 14:34-14:36, 14:38:01-14:39, 14:42-14:45, 14:54:01-14:54:05, 14:55 ^w , 14:56, 14:58-14:60, 14:62, 14:64-14:65, 14:70, 14:72, 14:75, 14:81-14:82, 14:86-14:88, 14:90-14:92N, 14:95-14:97, 14:99-14:101, 14:103, 14:110, 14:112-14:114, 14:117-14:118, 14:122-14:125, 14:127:01-14:127:02, 14:129-14:134, 14:139-14:140, 14:142, 14:147, 14:149-14:151, 14:153-14:155, 14:157-14:158, 14:160, 14:162-14:163	*11:01:03, 11:01:10-11:01:11, 11:04:07, 11:08:03, 11:13:01-11:13:02, 11:17, 11:19:02, 11:52, 11:89, 11:159, 13:02:02, 13:26:01, 13:60, 13:77, 13:163, 13:181
2⁸	180 bp	430 bp	*14:01:01-14:01:04, 14:07:01-14:08, 14:16, 14:22, 14:25-14:26, 14:32:01-14:32:03, 14:34-14:35, 14:38:01-14:39, 14:49, 14:53-14:55, 14:58, 14:60, 14:62, 14:69-14:70, 14:72, 14:74-14:75, 14:82, 14:86-14:88, 14:90, 14:92N, 14:97, 14:99, 14:101, 14:104-14:105, 14:110-14:114, 14:117-14:119, 14:122, 14:124-14:125, 14:128-14:133, 14:137N, 14:139-14:140, 14:142, 14:146-14:147, 14:149-14:151, 14:153, 14:157-14:158, 14:162-14:163	*03:10, 11:31, 11:52, 11:96, 11:148, 13:43, 13:45, 13:159, 13:171:01, 13:179, 13:191, 13:197
3	140 bp	430 bp	*14:02:01-14:02:02, 14:06:01-14:06:03, 14:09, 14:13, 14:17, 14:19, 14:21, 14:29-14:30, 14:33, 14:46-14:48, 14:51-14:52, 14:80, 14:83, 14:106, 14:108-14:109, 14:121	*03:76, 13:10, 13:85, 13:120, 13:170, 13:176, 13:178, 13:193, 13:196
4⁵	85 bp	430 bp	*14:02:01-14:03:02, 14:06:01-14:06:03, 14:12:01-14:13, 14:18-14:20, 14:24, 14:27, 14:29, 14:40-14:41, 14:47-14:49, 14:51, 14:63, 14:67, 14:77-14:78, 14:81, 14:83, 14:85, 14:89, 14:94, 14:98, 14:106, 14:108-14:109, 14:115, 14:135, 14:154, 14:156, 14:159-14:160	*03:02:01-03:03, 03:27, 03:29, 03:38, 03:53, 03:74, 03:88, 03:90, 03:102-03:103, 03:115, 13:15, 13:19, 13:26:01-13:26:02, 13:53, 13:57, 13:85, 13:104, 13:198

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5	260 bp	515 bp	*14:02:01-14:03:02, 14:07:01-14:07:02, 14:09, 14:13-14:14, 14:19, 14:22, 14:24-14:25, 14:27, 14:30, 14:36, 14:40-14:42, 14:44:01-14:44:03, 14:47-14:49, 14:51, 14:53, 14:63, 14:67, 14:69, 14:77, 14:85, 14:89, 14:94, 14:98, 14:102, 14:109, 14:115-14:116, 14:119, 14:134-14:135, 14:144, 14:159	*03:02:01-03:02:02, 03:05:01-03:05:03, 03:09, 03:14, 03:17, 03:27, 03:29, 03:35, 03:38, 03:40-03:41:02, 03:53, 03:74, 03:81, 03:88, 03:90, 03:102-03:103, 03:115, 11:01:01-11:01:27, 11:08:01-11:11:01, 11:11:03-11:12:02, 11:14:01-11:15, 11:19:01-11:20, 11:23:01-11:24, 11:26-11:29:01, 11:31-11:33, 11:37:01-11:37:02, 11:39, 11:45, 11:49:01-11:49:02, 11:51, 11:53, 11:61-11:62:02, 11:64, 11:66, 11:68-11:69, 11:72-11:75, 11:79-11:82, 11:87, 11:90-11:91, 11:93-11:97, 11:99-11:101, 11:103:01-11:103:02, 11:105-11:112, 11:114, 11:117, 11:120-11:122, 11:125-11:126, 11:128, 11:133-11:134, 11:136, 11:140-11:145, 11:147:01-11:147:02, 11:149-11:150, 11:152, 11:154-11:155, 11:157-11:158, 11:162, 11:164, 11:166-11:170, 11:172, 11:175, 11:178, 11:183-11:184, 13:02:01-13:02:03, 13:02:05-13:03:06, 13:05:01-13:05:03, 13:07:01-13:07:02, 13:12:01-13:14:03, 13:21:01-13:21:02, 13:23:01-13:23:02, 13:25-13:26:02, 13:29-13:31, 13:33:01-13:34, 13:36-13:39, 13:41, 13:45-13:47, 13:49-13:50:03, 13:55-13:56, 13:60, 13:62-13:63, 13:65-13:66:02, 13:73-13:74, 13:82, 13:85-13:86, 13:88, 13:90, 13:95-13:97:02, 13:99-13:101, 13:104, 13:107, 13:115, 13:118-13:120, 13:122-13:124, 13:126, 13:128, 13:132-13:136, 13:139-13:140, 13:142N-13:143, 13:145, 13:147, 13:151-13:152, 13:154-13:155, 13:157-13:159, 13:161, 13:165, 13:167-13:168, 13:170-13:172, 13:174, 13:179-13:180, 13:182, 13:188-13:189, 13:194, 13:196-13:199, 13:202-13:203, DRB3*01:14
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26^{5,8}	125 bp 250 bp	515 bp	*14:59, 14:86, 14:96, 14:145, 14:153-14:154 *14:01:01-14:01:04	*12:34
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28⁶	170 bp 225 bp	430 bp	*14:11, 14:148 *14:50, 14:76, 14:79, 14:93	*08:31, 08:41, 08:63, 08:75, 11:67, 12:04, 12:49 *03:92, 08:40, 08:67, 12:22, 13:17, 13:116, 13:175
29⁵	115 bp 135 bp 175 bp 220 bp	515 bp	*14:97 *14:60, 14:158 *14:48 *14:104, 14:111	*03:26, 03:33, 03:44, 11:44, 11:49:01- 11:50, 11:85, 11:127, 13:106 *13:95 *03:38, 03:79, 03:85, 03:96, 13:31, 13:46, 13:54, 13:77, 13:100, 13:162, 13:180, DRB3*01:14 *03:14-03:15, 03:90, 11:105
30	190 bp	430 bp	*14:06:01-14:06:03, 14:12:01- 14:12:02, 14:17-14:18, 14:21, 14:29, 14:33, 14:52, 14:59, 14:64, 14:78, 14:80-14:81, 14:83, 14:95, 14:106, 14:108, 14:121, 14:132- 14:133, 14:154	*03:01:01-03:01:25, 03:03, 03:06- 03:08, 03:10-03:13:02, 03:15-03:16, 03:18-03:20, 03:22-03:24, 03:26, 03:28, 03:32-03:34, 03:36-03:37, 03:39, 03:42, 03:45-03:48, 03:50-03:51, 03:54-03:56, 03:58-03:62, 03:64-03:73, 03:76-03:87, 03:89, 03:91-03:101, 03:104, 03:106- 03:114, 03:116-03:117, 03:120-03:121, 11:16, 11:40, 11:58:01, 11:59, 11:83, 11:113, 11:115, 11:182, 12:58, 13:01:01-13:01:16, 13:06, 13:09-13:10, 13:15, 13:18, 13:20, 13:27-13:28, 13:32, 13:35, 13:40, 13:42-13:43, 13:51, 13:53, 13:59, 13:61:01-13:61:02, 13:69, 13:71, 13:77-13:80, 13:87, 13:91-13:93, 13:98, 13:102, 13:105, 13:110-13:114, 13:117, 13:121, 13:125, 13:127, 13:129-13:131, 13:137N-13:138, 13:141, 13:144, 13:146, 13:148, 13:153, 13:156, 13:160, 13:163, 13:166, 13:173, 13:176-13:178, 13:181, 13:183-13:187, 13:190-13:193, 13:200N-13:201, 15:32
31⁵	80 bp	515 bp	*14:35, 14:53, 14:72, 14:128, 14:132, 14:138	*03:10, 11:31, 11:96, 11:148, 13:43, 13:45, 13:179
32⁵	100 bp 145 bp	430 bp	*14:13, 14:63, 14:78, 14:85 *14:19, 14:21, 14:109	*03:12, 13:32, 13:65, 13:93, 13:120, 13:139 *03:76, 13:10, 13:85, 13:120, 13:170, 13:176, 13:178, 13:196
33	175 bp	430 bp	*14:01:01-14:01:04, 14:07:01- 14:08, 14:16, 14:22, 14:25-14:26, 14:32:01-14:32:03, 14:34-14:35,	*03:10, 13:43, 13:45, 13:159, 13:179, 13:191

101.117-12/03 – including *Taq* pol., IFU-01
101.117-12u/03u – without *Taq* pol., IFU-02

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			14:38:01-14:39, 14:49, 14:53-14:55, 14:58, 14:60, 14:62, 14:69-14:70, 14:74-14:75, 14:82, 14:86-14:88, 14:90, 14:92N, 14:97, 14:99, 14:104-14:105, 14:110-14:114, 14:117-14:119, 14:122, 14:124- 14:125, 14:128-14:129, 14:131- 14:133, 14:137N, 14:139-14:140, 14:142, 14:146-14:147, 14:149- 14:151, 14:153, 14:157-14:158, 14:162-14:163	
34	205 bp	515 bp	*14:04:01-14:04:02, 14:11, 14:28, 14:31, 14:50, 14:68:01-14:68:02, 14:71, 14:93, 14:120, 14:126:01- 14:126:02, 14:138, 14:145, 14:148	
35	250 bp	430 bp	*14:04:01-14:04:02, 14:11, 14:15, 14:28, 14:31, 14:50, 14:52, 14:71, 14:73, 14:76, 14:79, 14:107, 14:120, 14:126:01-14:126:02, 14:138, 14:145, 14:148, 14:152N	*03:92, 08:04:01, 08:04:04-08:04:07, 08:06, 08:10, 08:12, 08:22, 08:28, 08:31, 08:54, 08:59, 08:67, 08:70, 08:75, 11:67, 12:01:01-12:15, 12:17- 12:21, 12:23-12:38, 12:40-12:41, 12:43- 12:56, 12:58, 13:17, 13:116, 13:175
	280 bp		*14:113	*04:85
36⁵	120 bp	515 bp	*14:48, 14:63-14:64, 14:67, 14:78, 14:108-14:109, 14:115	*03:13:01-03:13:02, 03:38, 03:58, 03:65, 03:79, 03:88, 11:16, 11:20, 12:58, 13:01:01-13:01:06, 13:01:08-13:02:09, 13:02:11-13:02:12, 13:06, 13:10, 13:15- 13:16, 13:27-13:28, 13:31-13:32, 13:34- 13:36, 13:39-13:41, 13:51, 13:53, 13:59, 13:61:01-13:61:02, 13:65, 13:67, 13:69, 13:73, 13:77-13:80, 13:85, 13:87, 13:91- 13:93, 13:96:01-13:96:02, 13:98-13:99, 13:102-13:105, 13:109-13:110, 13:112- 13:113N, 13:117, 13:120-13:121, 13:123-13:128, 13:130-13:131, 13:137N-13:139, 13:141-13:143, 13:145-13:148, 13:153, 13:155-13:157, 13:159-13:160, 13:163, 13:165-13:166, 13:168, 13:170-13:171:02, 13:173, 13:176-13:177, 13:179, 13:181, 13:183, 13:185N-13:187, 13:190-13:191, 13:198, 13:200N-13:202, DRB3*01:08
	155 bp		*14:18, 14:33, 14:51, 14:59, 14:64, 14:95, 14:106, 14:132-14:134, 14:154	*03:11:01, 03:97
37	175 bp	430 bp		*03:08, 03:65, 11:01:01-11:04:12, 11:06:01-11:11:01, 11:11:03-11:21, 11:23:01-11:29:01, 11:31-11:66, 11:68- 11:70, 11:72-11:103:02, 11:105-11:176, 11:178-11:184
38	165 bp	515 bp	*14:05:01, 14:05:03-14:05:04, 14:37, 14:43-14:45, 14:56, 14:91, 14:96, 14:100, 14:103, 14:127:01- 14:127:02, 14:136	*03:35, 13:72
	215 bp		*14:37, 14:100	*13:72
39	200 bp	430 bp	*14:01:01-14:01:04, 14:07:01- 14:08, 14:14, 14:18, 14:23:01-	*11:13:01-11:13:02, 11:17, 11:52, 11:89, 11:159

101.117-12/03 – including *Taq* pol., IFU-01
101.117-12u/03u – without *Taq* pol., IFU-02

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			14:23:04, 14:26, 14:32:01-14:32:02, 14:34-14:36, 14:38:01-14:38:02, 14:42, 14:54:01-14:54:05, 14:58- 14:60, 14:62, 14:64-14:65, 14:70, 14:72, 14:75, 14:81-14:82, 14:86- 14:88, 14:90, 14:92N, 14:95, 14:97, 14:99, 14:101, 14:110, 14:112- 14:114, 14:117-14:118, 14:122- 14:125, 14:129, 14:131-14:134, 14:139, 14:142, 14:147, 14:149- 14:151, 14:153-14:155, 14:157- 14:158, 14:160, 14:162-14:163	
40⁸	210 bp 250 bp	430 bp	*14:107 *14:71	*08:40, 13:17, 13:116, 13:175
41⁵	115 bp 140 bp 165 bp 210 bp 245 bp	430 bp	*14:91, 14:94, 14:97, 14:162 *14:129 *14:90 *14:163 *14:75, 14:103	*03:04:01-03:04:02, 03:26, 03:33, 03:44, 11:29:01, 11:44, 11:47, 11:49:01-11:50, 11:63:01-11:63:02, 11:85, 11:127, 11:165, 13:60, 13:84, 13:106
42^{6,7}	240 bp	515 bp	*14:01:01, 14:01:02 [?] -14:01:04 [?] , 14:02:02 [?] , 14:04:01, 14:04:02 [?] , 14:05:01, 14:05:02 [?] -14:05:04 [?] , 14:06:02 [?] -14:06:03 [?] , 14:07:01, 14:07:02 [?] -14:09 [?] , 14:10-14:11, 14:12:01 [?] -14:12:02 [?] , 14:14, 14:15 [?] - 14:20 [?] , 14:22 [?] -14:45 [?] , 14:47 [?] - 14:53 [?] , 14:54:01-14:54:05, 14:55 [?] - 14:56 [?] , 14:57, 14:58 [?] -14:65 [?] , 14:67 [?] -14:81 [?] , 14:82, 14:83 [?] - 14:136 [?] , 14:137N, 14:138 [?] -14:140 [?] , 14:141, 14:142 [?] -14:143 [?] , 14:145 [?] - 14:151 [?] , 14:152N, 14:153 [?] -14:160 [?] , 14:162 [?] -14:163 [?]	*11:13:01-11:13:02, 11:149, 13:08
43^{5,8}	95 bp 200 bp	430 bp	*14:101 *14:82, 14:95, 14:132	*03:01:17
44	215 bp 280 bp	515 bp	*14:70, 14:83, 14:155 *14:113	*15:03:01:01-15:03:02, 15:23, 15:54, 15:57, 15:94 *04:85
45^{5,8}	65 bp 190 bp 225 bp	430 bp	*14:98 *14:45 *14:127:01	*08:67, 11:27:01, 11:84:01, 11:124, 11:138, 12:22, 13:33:02-13:33:03, 13:61:01, 13:94:02, 13:96:02 *03:35
46^{5,8}	105 bp 140 bp 165 bp 220 bp	515 bp	*14:92N *14:129, 14:158 *14:88 *14:87, 14:89	*13:95
47^{5,7}	60 bp	430 bp	*14:63, 14:67, 14:78	*04:12, 04:18, 04:86, 04:185, 08:03:02- 08:03:05, 08:10, 08:12, 08:14-08:15, 08:19, 08:23, 08:27, 08:30:01-08:30:03, 08:32-08:38, 08:45-08:46, 08:49, 08:51,

101.117-12/03 – including *Taq* pol., IFU-01
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	08:53, 08:58, 08:60N-08:63, 08:65-08:66, 08:68-08:69, 08:71, 08:74, 11:45, 11:119, 13:13, 13:146, 13:154, 13:156, 15:21
48⁹	Negative Control

¹Alleles are assigned by the presence of specific PCR product(s). However, the sizes of the specific PCR products may be helpful in the interpretation of DRB1*14 SSP typings.

When the primers in a primer mix can give rise to HLA-specific PCR products of more than one length this is indicated if the size difference is more than 20 base pairs. Size differences of 20 base pairs or less are not given. For high resolution SSP kits, the alleles listed are specified according to amplicon length.

Nonspecific amplifications, i.e. a ladder or a smear of bands, may sometimes be seen. GC-rich primers have a higher tendency of giving rise to nonspecific amplifications than other primers.

PCR fragments longer than the control bands may sometimes be observed. Such bands should be disregarded and do not influence the interpretation of the SSP typings.

PCR fragments migrating faster than the control bands, but slower than a 400 bp fragment may be seen in some gel read-outs. Such bands can be disregarded and do not influence the interpretation of the SSP typings.

Some primers may give rise to primer oligomer artifacts. Sometimes this phenomenon is an inherent feature of the primer pair(s) of a primer mix. More often it is due to other factors such as too low amount of DNA in the PCR reactions, taking too long time in setting up the PCR reactions, working at elevated room temperature or using thermal cyclers that are not pre-heated.

²The internal positive control primer pairs amplify segments of the human growth hormone gene. The internal positive control bands are 430 or 515 base pairs respectively, well distribution as outlined in the table. Well number 1 contains the longer, 515 bp, internal positive control band. The well distribution of the internal controls can help in orientation of the kit on gel photo, as well as allow for kit identification. In the presence of a specific amplification the intensity of the control band often decreases.

³For several DRB1 alleles 1st and/or 3rd exon(s) and beyond, as well as intron nucleotide sequences, are not available. In these instances it is not known whether some of the primers of the SSP sets are completely matched with the target sequences or not. Assumption is made that unknown sequences in these regions are conserved within allelic groups.

⁴Due to the sharing of sequence motifs within the DR52 group of DRB1 alleles, non-DRB1*14 alleles will be amplified by primer mixes 1 to 26, 28 to 33 and 35 to 47. In addition, DRB3 alleles will be amplified by primer mixes 5, 18, 22, 24, 25, 27, 29 and 36.

⁵HLA-specific PCR products shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR products.

⁶Primer mixes 11, 23, 28 and 42 may have tendencies of unspecific amplifications.

⁷Primer mixes 13, 16, 18, 42 and 47 may give rise to a lower yield of HLA-specific PCR product than the other DRB1*14 primer mixes.

⁸Primer mixes 2, 16, 26, 40, 43, 45 and 46 have a tendency of giving rise to primer oligomer formation.

⁹Primer mix 48 contains a negative control, which will amplify more than 95% of HLA amplicons as well as the amplicons generated by the control primer pairs matching the human growth hormone gene. HLA-specific PCR product sizes range from 75 to 200 base pairs and the PCR product generated by the HGH positive control primer pair is 430 base pairs.

‘w’, might be weakly amplified.

‘?’, nucleotide sequence information not available for the primer matching sequence.

101.117-12/03 – including *Taq* pol., IFU-01
101.117-12u/03u – without *Taq* pol., IFU-02

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Lot-specific information

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PRIMER SPECIFICATION

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec. PCR product	215	180	140	85	260	260	200	170	130	180	85	225
Length of int. pos. control ¹	515	430	430	430	515	515	430	430	430	430	430	515
5'-primer(s) ²	13(125) 5'-gTC 3'	13(125) 5'-gTC 3'	36(196) 5'-AgA 3'	13(125) 5'-gTC 3'	13(125) 5'-gTC 3'	13(125) 5'-gTC 3'	13(125) 5'-gTC 3'	13(125) 5'-ggg 3'	16(135) 5'-CAA 3'	5(103) 5'-CAT 3'	59(265) 5'-AgC 3'	13(125) 5'-gTC 3'
								15(133) 5'-gTT 3'	56(256) 5'-CTA 3'	10(118) 5'-ACC 3'		
										13(125) 5'-ACA 3'		
3'-primer(s) ³	70(296) 5'-TCC 3'	57(257) 5'-CAg 3'	69(295) 5'-CTg 3'	28(171) 5'-CTC 3'	86(344) 5'-CAC 3'	86(344) 5'-CCA 3'	66(286) 5'-gAT 3'	57(257) 5'-CAg 3'	86(344) 5'-CCA 3'	57(257) 5'-CAg 3'	73(307) 5'-CgC 3'	74(308) 5'-CCT 3'
	72(303) 5'-gCg 3'	59(265) 5'-gTg 3'	70(298) 5'-CTT 3'				73(307) 5'-CAg 3'					74(308) 5'-CCT 3'
												74(308) 5'-CCT 3'
Well No.	1	2	3	4	5	6	7	8	9	10	11	12

Well No.	13	14	15	16	17	18	19	20	21	22	23	24
Length of spec. PCR product	115	60	185	105	220	85	145	110	170	145	155	75
		130						160	215			115
								215				135
												165
Length of int. pos. control ¹	430	515	430	430	430	430	430	430	515	430	430	430
5'-primer(s) ²	34(189) 5'-CAg 3'	36(196) 5'-AgA 3'	36(196) 5'-AgA 3'	57(258) 5'-gAT 3'	13(125) 5'-gTC 3'	13(125) 5'-gTC 3'	37(197) 5'-gTT 3'	15(133) 5'-gTT 3'	13(125) 5'-gTC 3'	13(125) 5'-gTC 3'	13(125) 5'-gTC 3'	13(125) 5'-gTC 3'
		36(196) 5'-AgA 3'	37(197) 5'-gTT 3'	57(258) 5'-gAC 3'				34(189) 5'-CAA 3'				
		59(265) 5'-AgC 3'										
3'-primer(s) ³	59(265) 5'-gTg 3'	66(286) 5'-gAA 3'	85(341) 5'-CAg 3'	78(321) 5'-CAA 3'	68(292) 5'-CTg 3'	28(171) 5'-CTg 3'	70(298) 5'-CTC 3'	57(257) 5'-CAg 3'	56(256) 5'-gCT 3'	47(227) 5'-ggT 3'	47(227) 5'-ggA 3'	25(161) 5'-ACT 3'
					70(298) 5'-CTT 3'	28(171) 5'-CTg 3'	73(307) 5'-CAg 3'	73(307) 5'-CAg 3'	70(298) 5'-CgC 3'		55(251) 5'-gCT 3'	37(199) 5'-CAg 3'
					76(316) 5'-ggC 3'	30(177) 5'-AAA 3'						44(220) 5'-CCg 3'
												54(250) 5'-CCC 3'
Well No.	13	14	15	16	17	18	19	20	21	22	23	24

101.117-12/03 – including *Taq* pol., IFU-01
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Well No.	25	26	27	28	29	30	31	32	33	34	35	36
Length of spec.	85	125	165	170	115	190	80	100	175	205	250	120
PCR product	120	250	220	225	135			145			280	155
	210				175							
	250				220							
Length of int.	430	515	515	430	515	430	515	430	430	515	430	515
pos. control ¹												
5'-primer(s) ²	16(135) 5'-CAA 3'	51(239) 5'-gAg 3'	10(116) 5'-gCT 3'	15(133) 5'-gTT 3'	13(125) 5'-gTC 3'	36(196) 5'-AgA 3'	47(227) 5'-gTT 3'	36(196) 5'-AgA 3'	13(125) 5'-gTC 3'	15(133) 5'-gTT 3'	5(103) 5'-CAA 3'	36(196) 5'-AgA 3'
	59(265) 5'-AgC 3'	111(421) 5'-ACT 3'									15(133) 5'-gTT 3'	
3'-primer(s) ³	72(304) 5'-ggA 3'	78(321) 5'-CAA 3'	51(239) 5'-CCC 3'	58(260) 5'-CCT 3'	38(200) 5'-gCg 3'	86(344) 5'-CCA 3'	59(265) 5'-gTg 3'	56(256) 5'-gCT 3'	58(260) 5'-CCg 3'	70(296) 5'-TCC 3'	86(344) 5'-CCA 3'	60(266) 5'-Agg 3'
	74(308) 5'-CCA 3'	181(630) 5'-CTT 3'	69(295) 5'-CTg 3'	71(299) 5'-gCT 3'	42(214) 5'-gTA 3'			70(298) 5'-CTT 3'				66(286) 5'-gAT 3'
	86(344) 5'-CAC 3'			77(317) 5'-AgT 3'	44(220) 5'-CCT 3'							66(286) 5'-gAT 3'
				77(318) 5'-TAA 3'	57(257) 5'-CgA 3'							66(286) 5'-gAA 3'
					73(305) 5'-ggC 3'							74(308) 5'-CCT 3'
Well No.	25	26	27	28	29	30	31	32	33	34	35	36

Well No.	37	38	39	40	41	42	43	44	45	46	47
Length of spec.	175	165	200	210	115	240	95	215	65	105	60
PCR product		215		250	140		200	280	190	140	
					165				225	165	
					210					220	
					245						
Length of int.	430	515	430	430	430	515	430	515	430	515	430
pos. control ¹											
5'-primer(s) ²	13(125) 5'-gTC 3'	16(135) 5'-CAA 3'	16(135) 5'-CAT 3'	15(133) 5'-gTT 3'	13(125) 5'-gTC 3'	114(429) 5'-CTg 3'	26(164) 5'-gTA 3'	5(103) 5'-CAA 3'	16(135) 5'-CAA 3'	13(125) 5'-gTC 3'	66(286) 5'-ACA 3'
							59(265) 5'-AgT 3'	26(166) 5'-TCA 3'	69(295) 5'-AAg 3'		
								29(175) 5'-gAC 3'			
3'-primer(s) ³	58(260) 5'-CCT 3'	58(261) 5'-TCA 3'	70(296) 5'-TCC 3'	71(299) 5'-gCT 3'	37(197) 5'-Cgg 3'	181(630) 5'-CTT 3'	78(321) 5'-CAA 3'	86(344) 5'-CCA 3'	66(286) 5'-gAT 3'	34(190) 5'-CTA 3'	73(307) 5'-CAG 3'
	58(260) 5'-CCT 3'	74(308) 5'-CCg 3'		73(305) 5'-ggC 3'	38(200) 5'-gCg 3'				77(317) 5'-AAT 3'	42(214) 5'-gTA 3'	
	58(260) 5'-CCT 3'			85(343) 5'-CAT 3'	46(224) 5'-ACC 3'					46(224) 5'-ACC 3'	
					54(250) 5'-CCC 3'					55(251) 5'-gCT 3'	
					68(292) 5'-CTg 3'					69(295) 5'-CTg 3'	
					80(328) 5'-gTA 3'					74(310) 5'-CAT 3'	
Well No.	37	38	39	40	41	42	43	44	45	46	47

101.117-12/03 – including *Taq* pol., IFU-01
101.117-12u/03u – without *Taq* pol., IFU-02

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Lot-specific information

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¹The internal positive control primer pairs amplify segments of the human growth hormone gene. The internal positive control bands are 430 or 515 base pairs respectively, well distribution as outlined in the table. Well number 1 contains the longer, 515 bp, internal positive control band. The well distribution of the internal controls can help in orientation of the kit on gel photo, as well as allow for kit identification. In the presence of a specific amplification the intensity of the control band often decreases.

²The nucleotide position matching the specificity-determining 3'-end of the primer is given. Nucleotide numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

³The nucleotide position matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Nucleotide numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

101.117-12/03 – including *Taq* pol., IFU-01
101.117-12u/03u – without *Taq* pol., IFU-02

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Lot-specific information

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CELL LINE VALIDATION SHEET																				
DRB1*14 SSP subtyping kit ²																				
					Well ³															
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
				Prod. No.:	201438401	201312802	201191403	201191404	201560305	201191406	201312807	201191408	201191409	201560310	201560311	201191412	201191413	201191414	201191415	201438416
	IHWC cell line ¹		DRB1																	
1	9001 SA		*01:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280 LK707		*15:02	*04:05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	9011 E4181324		*15:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	9275 GU373		*03:01		-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
5	9009 KAS011		*16:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	9353 SM		*04:07	*08:03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	9020 QBL		*03:01		-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
8	9025 DEU		*04:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9026 YAR		*04:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	9107 LKT3		*04:05		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	9051 PTOUT		*07:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	9052 DBB		*07:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	9004 JESTHOM		*01:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071 OLGA		*08:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	9075 DKB		*09:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	9037 SWEIG007		*11:01		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
17	9282 CTM3953540		*03:01	*13:01	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
18	9257 32367		*09:01	*11:01	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
19	9038 BM16		*12:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	9059 SLE005		*13:02		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
21	9064 AMALA		*14:02		-	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-
22	9056 KOSE		*13:02	*14:54	+	+	-	-	+	+	-	-	-	-	-	+	+	-	-	-
23	9124 IHL		*08:03	*14:14	+	-	-	-	+	-	-	-	-	-	-	+	-	-	-	+
24	9035 JBUSH		*11:01		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
25	9049 IBW9		*07:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	9285 WT49		*03:01		-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
27	9191 CH1007		*04:05	*10:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	9320 BEL5GB		*04:16	*07:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	9050 MOU		*07:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	9021 RSH		*03:02		-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-
31	9019 DUCAF		*03:01		-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
32	9297 HAG		*13:03		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
33	9098 MT14B		*04:04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	9104 DHIF		*11:01		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
35	9302 SSTO		*04:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	9024 KT17		*04:03	*04:06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	9065 HHKB		*13:01		-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
38	9099 LZL		*14:02		-	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-
39	9315 CML		*03:01	*04:01	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
40	9134 WHONP199		*07:01	*09:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	9055 H0301		*13:02		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
42	9066 TAB089		*08:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43	9076 T7526		*09:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	9057 TEM		*14:01		+	+	-	-	-	+	-	-	-	-	-	+	+	-	-	-
45	9239 SHJO		*07:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46	9013 SCHU		*15:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	9045 TUBO		*11:04	*12:01	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
48	9303 TER-ND		*01:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

101.117-12/03 – including *Taq* pol., IFU-01
101.117-12u/03u – without *Taq* pol., IFU-02

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Lot No.: **1D9**

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CELL LINE VALIDATION SHEET																					
DRB1*14 SSP subtyping kit ²																					
					Well ³																
						17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
				Prod. No.:		201560317	201560318	201560319	201312820	201191421	201191422	201312823	201191424	201438425	201438426	201438427	201560328	201560329	201191430	201191431	201191432
IHCW cell line ¹			DRB1																		
1	9001	SA	*01:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2	9280	LK707	*15:02	*04:05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3	9011	E4181324	*15:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4	9275	GU373	*03:01		-	+	-	-	-	-	-	+	-	-	-	+	-	-	+	-	
5	9009	KAS011	*16:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6	9353	SM	*04:07	*08:03	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	
7	9020	QBL	*03:01		-	+	-	-	-	-	-	+	-	-	-	+	-	-	+	-	
8	9025	DEU	*04:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
9	9026	YAR	*04:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
10	9107	LKT3	*04:05		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
11	9051	PITOUT	*07:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
12	9052	DBB	*07:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
13	9004	JESTHOM	*01:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
14	9071	OLGA	*08:02		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	
15	9075	DKB	*09:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
16	9037	SWEIG007	*11:01		-	+	-	-	-	-	+	-	-	-	-	+	-	-	-	-	
17	9282	CTM3953540	*03:01	*13:01	-	+	-	-	-	-	+	-	-	-	-	-	-	-	+	-	
18	9257	32367	*09:01	*11:01	-	+	-	-	-	-	+	-	-	-	-	+	-	-	-	-	
19	9038	BM16	*12:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	
20	9059	SLE005	*13:02		-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-	
21	9064	AMALA	*14:02		-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	
22	9056	KOSE	*13:02	*14:54	-	+	-	-	-	+	+	-	-	-	-	+	-	-	-	-	
23	9124	IHL	*08:03	*14:14	-	+	-	+	-	+	-	-	-	-	-	+	-	-	-	-	
24	9035	JBUSH	*11:01		-	+	-	-	-	-	+	-	-	-	-	+	-	-	-	-	
25	9049	IBW9	*07:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
26	9285	WT49	*03:01		-	+	-	-	-	-	+	-	-	-	-	+	-	-	+	-	
27	9191	CH1007	*04:05	*10:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
28	9320	BEL5GB	*04:16	*07:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
29	9050	MOU	*07:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
30	9021	RSH	*03:02		-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	
31	9019	DUCAF	*03:01		-	+	-	-	-	-	+	-	-	-	-	+	-	-	+	-	
32	9297	HAG	*13:03		+	+	-	-	+	+	-	-	-	-	-	-	-	-	-	-	
33	9098	MT14B	*04:04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
34	9104	DHIF	*11:01		-	+	-	-	-	-	+	-	-	-	-	+	-	-	-	-	
35	9302	SSTO	*04:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
36	9024	KT17	*04:03	*04:06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
37	9065	HHKB	*13:01		-	+	-	-	-	-	+	-	-	-	-	-	-	-	+	-	
38	9099	LZL	*14:02		-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	
39	9315	CML	*03:01	*04:01	-	+	-	-	-	-	+	-	-	-	-	-	-	-	+	-	
40	9134	WHONP199	*07:01	*09:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
41	9055	H0301	*13:02		-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-	
42	9066	TAB089	*08:03		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	
43	9076	T7526	*09:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
44	9057	TEM	*14:01		-	+	-	-	-	+	-	-	-	-	+	+	-	-	-	-	
45	9239	SHJO	*07:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
46	9013	SCHU	*15:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
47	9045	TUBO	*11:04	*12:01	-	+	-	-	-	-	+	-	-	-	-	+	-	-	+	-	
48	9303	TER-ND	*01:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

101.117-12/03 – including *Taq* pol., IFU-01
101.117-12u/03u – without *Taq* pol., IFU-02

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Lot No.: **1D9**

Lot-specific information

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CELL LINE VALIDATION SHEET																			
DRB1*14 SSP subtyping kit ²																			
					Well ³														
					33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
				Prod. No.:	201191433	201191434	201312835	201438436	201191437	201312838	201560339	201560340	201560341	201560342	201560343	201312844	201191448	201560346	201191447
	IHCW cell line ¹		DRB1																
1	9001	SA	*01:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280	LK707	*15:02	*04:05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	9011	E4181324	*15:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	9275	GU373	*03:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	9009	KAS011	*16:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	9353	SM	*04:07	*08:03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
7	9020	QBL	*03:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	9025	DEU	*04:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9026	YAR	*04:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	9107	LKT3	*04:05		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	9051	PITOUT	*07:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	9052	DBB	*07:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	9004	JESTHOM	*01:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071	OLGA	*08:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	9075	DKB	*09:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	9037	SWEIG007	*11:01		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
17	9282	CTM3953540	*03:01	*13:01	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
18	9257	32367	*09:01	*11:01	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
19	9038	BM16	*12:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
20	9059	SLE005	*13:02		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
21	9064	AMALA	*14:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	9056	KOSE	*13:02	*14:54	+	-	-	+	-	+	+	-	-	+	-	-	-	-	-
23	9124	IHL	*08:03	*14:14	-	-	-	-	-	+	+	-	-	+	-	-	-	-	+
24	9035	JBUSH	*11:01		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
25	9049	IBW9	*07:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	9285	WT49	*03:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	9191	CH1007	*04:05	*10:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	9320	BEL5GB	*04:16	*07:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	9050	MOU	*07:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	9021	RSH	*03:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	9019	DUCAF	*03:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	9297	HAG	*13:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	9098	MT14B	*04:04		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	9104	DHIF	*11:01		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
35	9302	SSTO	*04:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	9024	KT17	*04:03	*04:06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	9065	HHKB	*13:01		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
38	9099	LZL	*14:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	9315	CML	*03:01	*04:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	9134	WHONP199	*07:01	*09:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	9055	H0301	*13:02		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
42	9066	TAB089	*08:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
43	9076	T7526	*09:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	9057	TEM	*14:01		+	-	-	-	-	+	+	-	-	+	-	-	-	-	-
45	9239	SHJO	*07:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46	9013	SCHU	*15:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	9045	TUBO	*11:04	*12:01	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-
48	9303	TER-ND	*01:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

101.117-12/03 – including *Taq* pol., IFU-01
101.117-12u/03u – without *Taq* pol., IFU-02

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Lot No.: 1D9

Lot-specific information

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¹The provided cell line HLA specificities are retrieved from the <http://www.ihwg.org/hla> web site. The specificity of an individual cell line may thus be subject to change.

²The specificity of each primer solution in the kit has been tested against 48 well characterized cell line DNAs and where applicable, additional cell line DNAs.

³Primer mix 27 will amplify the DRB3*02:02 alleles in the GU373, QBL, SWEIG007, CH1007, DUCAF, DHIF, TEM and TUBO cell lines.

No DNAs carrying the alleles to be amplified by primer solutions 10, 11, 14, 15, 19, 24, 29, 31, 40, 43, 45 and 46 were available.

The specificities of the primers in primer solutions 10, 11, 14, 15, 19, 24, 29, 31, 40, 43 and 45 were tested by separately adding one or two additional 5'-primer, respectively, one or several additional 3'-primers.

In primer solution 46 it was only possible to test the 5'-primer, the 3'-primers were not possible to test.

In primer solutions 10, 14, 35, 43 and 44 one or two of the 5'-primers were not possible to test, and in primer solutions 7, 17, 18, 22 to 25, 29, 36, 37, 40, 41 and 45 one or more of the 3'-primers were not possible to test. Additional primers in primer solutions 1, 12, 16, 21, 25, 26, 27, 28 32, 36, 38 and 41 were tested by separately adding one 5'-primer and/or one 3'-primer.

101.117-12/03 – including *Taq* pol., IFU-01
101.117-12u/03u – without *Taq* pol., IFU-02

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Lot No.: **1D9**

Lot-specific information

www.olerup-ssp.com

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Fax: +46-8-717 88 18

E-mail: olerup-se@caredx.com

Web page: <http://www.olerup.com>

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